

April 16, 2004

Mark Reynolds  
Co-Op Mining Company  
P.O. Box 1245  
Huntington, Utah 84528

Re: Protocol for Raptor Prey Base Study, Co-Op Mining Company, Bear Canyon Mine, C/015/0025, Outgoing File

Dear Mr. Reynolds:

The Division has attached a protocol for the raptor prey base study that Bear Canyon Mine has agreed to conduct. The Division along with DWR and USFWS developed this protocol during a meeting on February 25, 2004. The intent of the protocol is to provide the consultant with guidelines for the study.

If you have any questions concerning the protocol for the prey base study, please contact Jerriann Ernsten at (801) 538-5214 or me at (801) 538-5268.

Sincerely,

Pam Grubaugh-Littig  
Permit Supervisor

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cc: Jerriann Ernsten, DOGM  
Joe Helfrich, DOGM  
Paul Baker, DOGM  
Diana Whittington, USFWS  
Tony Wright, DWR  
Chris Colt, DWR

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## THE BEAR CANYON MINE RAPTOR PREY BASE PROTOCOL

### Meeting Information

Date: February 25, 2004

Team: DOGM - Jerriann Ernstsens, Joe Helfrich, and Paul Baker, USFWS - Diana Whittington, and DWR - Tony Wright and Chris Colt.

Outcome: On February 25, 2004 biologists from DOGM, USFWS, and DWR met to draft strategies for the raptor prey base study. The information below is the final draft of the protocol for the study. The Permittee must provide this protocol to the consultant(s) conducting the study. The consultants must work with the agencies and follow the protocol.

### History

Bear Canyon Mine received DOGM authorization to construct and operate the Wildhorse Ridge mine portals and surface facilities in 1999. DWR determined that the surface disturbance was within 0.5 mile of a Redtail Hawk nest. The Permittee agreed to mitigate the nest by conducting a raptor prey base study.

### Goals

There are many energy-development projects in Utah. These projects include mitigation efforts such as seasonal closures, disturbance buffers, habitat improvements, and reclamation. Biologists typically recommend mitigation and reclamation guidelines that are ecologically and biologically sound for most projects. The team, however, is concerned that these guidelines may not provide maximum returns for projects at higher elevations.

DWR defined that the goal of the prey base study is to collect data on the foraging patterns of higher elevation (7,000 to 9,000') raptors. The team believes that the results from this study may help generate improved guidelines for raptor-related mitigation and reclamation. For example, what if higher elevation raptors forage in the valleys instead of near nesting sites? Acting on incorrect assumptions, a biologist might recommend a mitigation project for higher elevation sites rather than preferred valley locations.

The results may also help biologist recommend plant species that would attract prey and potentially maintain or raise the prey base populations.

### Financial Support

The Bear Canyon Mine will provide financial support by hiring a contractor(s) to conduct the prey base study.

### Responsible Party

Bear Canyon Mine will hire a consultant(s) to conduct the study. The Permittee must consider the following when selecting a consultant(s):

- Experience climbing/repelling in the canyon region.
- Access to lab facilities equipped with safety hoods.
- Experience separating bones and other hard remains from hair and other pellet material using sodium hydroxide.

The Permittee must submit to DOGM names of preferred consultants who might lead/conduct the study. It is up to the Permittee to make the final selection.

### Study Question

The study question is “What are the higher elevation raptors consuming?”.

### Study Subjects

The study will include collecting data on Red Tail Hawks and Golden Eagles nesting in canyon regions. The consultant(s) will collect data on nests in trees and on cliff rims located in canyon regions. The study will not include collecting data on nests located in forest regions.

### Focus Area

Area of study will range from Straight Canyon to Gordon Creek.

### Study Parameters

The contractor(s) must:

- Coordinate with DOGM and DWR to obtain timing and location for all data retrieval events.
- Survey a minimum of 10 active nests.
- Obtain the following data:
  - Remains below nest sites.
  - Nesting chicks (requires rappelling cliffs and climbing trees to observe).
  - Nests following fledging (requires rappelling cliffs and climbing trees to observe).
- Compile the scientific report adhering to the parameters described below.

### Timing

Few raptors nest in years when prey populations are low due to drought or other causes. Yearly flyovers will supply DWR with the information necessary to select the best year to conduct the study. DWR will use bird and active nest counts as indicators. Immediately following flyovers, DWR will contact DOGM to let them know whether to initiate the study.

Because of the “on-the-spot” decision to begin this study, the Permittee must have previously narrowed the names of preferred consultants. DOGM understands that it may be necessary to postpone this study if consultants are unavailable given the short notice.

#### Duration

The study will last for one nesting/fledging season. The consultant(s) will collect and compile the data, write consolidated report (field and lab), and submit a copy of the report to the Permittee, DOGM, DWR, and USFWS. The consultant(s) will submit the report no later than the end of the same year as the study.

#### Report Requirements

The consultant(s) will compile a scientific report that includes an introduction, material and methods, results, and summary.

The material and methods section must be comprehensive and cover field surveys, lab analysis, and quantitative analysis. There is a possibility that the team may repeat this study on a larger scale in the future. To provide repeatability, therefore, the consultant(s) must submit a precise description of material and methods.

Quantitative data analysis must include:

- Number of pellets and number of prey items collected under each nest site.
- Total number of individual organisms collected in the remains and minimum number of individuals represented in pellets.
- Estimates of biomass by species (primary prey) or other taxonomic group (secondary) in the diet based on average live weights of museum specimens. Minor prey items may be pooled into another category.
- Identification to the genus or family level of individual organisms considered primary to the total remains.

The results section must include a narrative that is supported by tables and graphs.

Specifics include:

- Tables with the analyzed and raw data sets.
- Topographic map showing the study area and nest locations.
- Pictures of all nests/birds and samples of forage remains.

#### Post-study Meeting

DOGM will coordinate a meeting after the team has reviewed the report. The goal is to develop new mitigation and reclamation recommendations based on the results of the raptor study. Regulating agencies will encourage coal companies and other energy-development industries to implement these recommendations.

For Bear Canyon Mine, a report that meets the above requirements will fully meet their mitigation agreement.

Although this study will provide valuable information, the team is hopeful that it will also serve as a “seed” for further studies. The team realizes that more data is necessary in order to avoid incorrect conclusions confounded by seasonal variations in prey base populations.

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